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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 10/670,902
Filing Date: September 25, 2003
Appellant(s): BRAUN, KAREN M.

Michael J. Nickerson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/22/2009 appealing from the Office action mailed 12/23/2008.

Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The statement of the status of amendments contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 2003/0020727	Newman	007-2001
US 2002/0158933	Yamamoto	02-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, and 7-17 are rejected under 35 U.S.C. 103 as being unpatentable over Newman et al., US 2003/0020727 in view of Yamamoto US 2002/0158933.

Re claim 1, Newman discloses a method for improving printer characterization to more accurately reproduce desired colors on a destination printing device (see figure 1) given the ambient illumination at the location where the printer's output is intended to be viewed (see abstract; figures 1, 3; and paragraphs 1, 11-15), comprising: a) producing a target consisting of pairs of metamers (see S605-S607 in figure 6), where each pair matches for one illuminant and mismatches for others (see figures 4, 6; paragraphs 46, 52, 59, 63, note that pair (metamer) consists of x, y, and z values, and each pair (xyz) matches for one illuminant (e.g. X_{D50}, YD_{50}, and Z_{D50} are matched) and mismatches for others ($X_{D50}YD_{50}Z_{D50}$ pair doesn't match with $X_AY_AZ_A$ pair); c) selecting a best metameric pair match (i.e. best fit) from said metameric pairs, which estimates said viewing illumination (see figures 4, 6, 9; paragraphs 11-18 & 46, 52, 59, 63-65, 67, note that single optimal color value is selected that best fits the different target color values in

viewing condition dependent space); d) entering an indicator of said estimated viewing illumination (see figs. 4, 6, 10, paragraphs 72, 63 note that desired destination viewing conditions and their weights as shown in figs. 4-6 (elements 409-411, 414-416) can be selected via a GUI shown in fig. 10); and e) adjusting the characterization data to correspond to said estimated viewing illumination (see figs. 6, 9, paragraphs 63-65, 67, note that regression analysis is applied to adjust the destination image 160 to correspond to viewing illumination conditions).

Newman fails to disclose b) viewing said target under the illumination for which characterization is desired.

However, Yamamoto teaches b) viewing a target (printed gray color patch, see S2, fig. 8, paragraph 66) under the illumination (standard light A and standard light D50) for which characterization is desired (see figure 8; paragraphs 66-69, note that each printed gray color patch is observed (visually viewed) in standard light sources D50 & A. Then the tristimulus values are calculated based on the observation of the printed gray color patch (target) under each light source and color difference, ΔE is then calculated based on the calculated tristimulus values. Based on the desired narrow range of ΔE, the best patch/patches is/are selected from plurality of patches).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to use the selected narrow range, visual patches as taught by Yamamoto for the predefined target color input values as taught by Newman for the benefit of formulating the final optimal best fit CMYK color value, as shown in

step S607, fig. 6 of Newman, in the viewing condition dependent space (see figs. 6, 9, paragraphs 63-65, 67 in Newman).

Re claim 7, Newman further discloses rendering an illumination-determination target on a color reproduction device (i.e. printer) (see figure 1, and paragraph 59).

Re claim 8, Newman further discloses the illumination-determination target has been prepared in advance of characterization (see paragraph 59).

Re claim 9, Newman further discloses the illumination-determination target is shipped or otherwise provided with said destination printing device (see paragraph 59, note that the user can print the referenced spectral model provided with the device).

Re claim 10, Newman further discloses said indicator is entered via a Digital Front End or print driver to the printer (see figures 10-11).

[Note: Yamamoto also discloses said indicator is entered via a Digital Front End or print driver to the printer (see figure 8)].

Re claim 11, Newman further discloses a Graphical User Interface for indicating said estimation of illumination (see figures 10-11).

Re claim 12, Newman further discloses each illuminant of interest represented in said illumination-determination target is a profile (see figure 10-11, and paragraphs 72-73).

Re claim 13, Newman further discloses said profile is applied as a result of the indication of illumination (see figure 10-11, and paragraphs 72-73).

Re claim 14, Newman further discloses estimated illumination is used to modify said characterization via a pre- transformation or post-transformation (see figures 6-13).

Re claim 15, Newman further discloses device values for metameric matches are derived using a cellular Neugebauer model (see paragraphs 54-57).

Re claim 16, Newman further discloses one half of each matched metameric pairs is produced with black (K) only and the other half is produced with Cyan, Magenta, and Yellow (CMY) (see paragraphs 54-72, note that various combinations of K and CMY can be applied based on the desired illuminant source, device type and type of analytical model used for characterizing the device).

Re claim 2, Newman discloses for each illuminant of interest, determining a metameric match (see figures 4, 6, 9; paragraphs 11-18 & 46, 52, 59, 63-65, 67, note that single optimal best fit metameric color value is selected for desired illuminant of interest at a destination location where the printer's output is intended to be viewed).

Yamamoto teaches the production of the target comprises: a) choosing a base color (i.e. black ink K); and b) determining a metameric match to said base color; and placing said base color adjacent to said metameric match to form a matched pair (see paragraphs 4-11, and 60-81).

Re claim 3, Newman fails to further disclose said metameric matched pairs are produced using different colorants.

However, Yamamoto further discloses said metameric matched pairs are produced using different colorants (see paragraphs 4-11, and 60-81).

Re claim 5, Newman further disclose converting said base color to device values, CMYK, using said re-characterization (see paragraphs 45-72).

Re claim 17, Newman further discloses producing said metameric pairs comprises, for each illuminant of interest: (see figure 6): a) printing Cyan, Magenta, Yellow, and black (CMYK) sweeps (see paragraph 59); b) measuring color values of said CMYK sweeps (see paragraph 59).

Newman fails to further disclose building gray-balanced Tone Reproduction Curves based on said measured color values; d) inputting a value n into said gray-balanced Tone Reproduction Curves to determine CMY colorant values; and e) inputting said value n into said gray-balanced Tone Reproduction Curves to determine K colorant value.

Yamamoto discloses building gray-balanced Tone Reproduction Curves (i.e. gray-reproduction characteristics) based on said measured color values (see abstract and paragraph 66); d) inputting a value n into said gray-balanced Tone Reproduction Curves to determine CMY colorant values and e) inputting said value n into said gray-balanced Tone Reproduction Curves to determine K colorant value (see paragraphs 60-81).

3. Claim 6 is rejected under 35 U.S.C. 103 as being unpatentable over Newman et al., US 2003/0020727 in view of Yamamoto US 2002/0158933 further in view of Well-known art.

Re claim 6, Newman fails to further disclose that the target includes either bipartite patches, concentric patches, readability tasks, or half-and-half images.

However, Official Notice is taken to note that targets (i.e. reference color test charts) includes either bipartite patches, concentric patches, readability tasks, or half-and-half images is notoriously well known and commonly used in the art. It would have been obvious to use those target charts as a spectral model in the color management system of Newman for the benefit of enabling the user to estimate likely XYZ (i.e. color matching) values for the given color patch (see paragraphs 59 & 68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the color management system as disclosed by Newman to include the color printing techniques as taught by Yamamoto for the benefit of reducing "dependence of color appearance of gray image areas on the light source used" as taught by Yamamoto in paragraph 13.

(10) Response to Argument

I. Applicant's arguments filed 5/22/2009 have been fully considered but they are not persuasive.

Applicant argues that Yamamoto fails to teach viewing the target under the illumination for which characterization is desired.

In reply, examiner asserts that Yamamoto teaches b) viewing a target (printed gray color patch, see S2, fig. 8, paragraph 66) under the illumination (standard light A and standard light D50) for which characterization is desired (see figure 8; paragraphs 66-69, note that each printed gray color patch is observed (visually viewed) in standard light sources D50 & A. Then the tristimulus values are calculated based on the observation of the printed gray color patch (target) under each light source and color difference, ΔE is then calculated based on the calculated tristimulus values. Based on the desired narrow range of ΔE, the best patch/patches is/are selected from plurality of patches). Furthermore, Yamamoto teaches in S3 of figure 8 that spectral reflectance of each printed gray color patch (S2) is measured under light source - D_{50} or A. In order to measure the spectral reflectance of the patch, the patch has to be sensed / viewed either by a machine or person such that the reflectance of the patch can be measured.

Thus, Yamamoto successfully teaches viewing a target under the illumination for which characterization is desired.

II. Applicant further argues that Yamamoto fails to teach selecting a best metameric pair match from the metameric pairs, which estimates said viewing illumination.

In reply, examiner asserts that Newman is shown to disclose the limitations a), c), d) and e) of claim 1. And Yamamoto is only cited for teaching the limitation b) of claim 1.

Newman is shown to disclose c) selecting a best metameric pair match (i.e. best fit) from said metameric pairs, which estimates said viewing illumination (see figures 4, 6, 9; paragraphs 11-18 & 46, 52, 59, 63-65, 67, note that single optimal color value is

selected that best fits the different target color values for viewing condition at a destination location where the printer's output is intended to be viewed).

Thus, applicant's arguments regarding Yamamoto failing to teach limitation c): selecting a best metameric pair match from the metameric pairs, which estimates said viewing illumination are invalid and rendered moot in view of Newman.

III. Applicant further argues that combine teachings of Newman and Yamamoto fail to teach the production of the target comprises: a) choosing a base color; and b) for each illuminant of interest, determining a metameric match to said base color; and placing said base color adjacent to said metameric match to form a matched pair.

In reply, examiner asserts that Newman discloses for each illuminant of interest, determining a metameric match (see figures 4, 6, 9; paragraphs 11-18 & 46, 52, 59, 63-65, 67, note that single optimal best fit metameric color value is selected for desired illuminant of interest at a destination location where the printer's output is intended to be viewed).

Yamamoto teaches the production of the target comprises: a) choosing a base color (i.e. black ink K); and b) determining a metameric match to said base color; and placing said base color adjacent to said metameric match to form a matched pair (see paragraphs 4-11, and 60-81).

IV. Applicant further argues that combine teachings of Newman and Yamamoto fail to teach for each illuminant of interest: a) printing Cyan, Magenta, Yellow, and

black sweeps; b) measuring color values of said CMYK sweeps; c) building gray-balanced Tone Reproduction Curves based on said measured color values; d) inputting a value n into said gray-balanced Tone Reproduction Curves to determine CMY colorant values; and e) inputting said value n into said gray-balanced Tone Reproduction Curves to determine K colorant value.

In reply, examiner asserts that Newman discloses producing said metameric pairs comprises, for each illuminant of interest: (see figure 6): a) printing Cyan, Magenta, Yellow, and black (CMYK) sweeps (see paragraph 59); b) measuring color values of said CMYK sweeps (see paragraph 59).

Newman fails to further disclose building gray-balanced Tone Reproduction Curves based on said measured color values; d) inputting a value n into said gray-balanced Tone Reproduction Curves to determine CMY colorant values; and e) inputting said value n into said gray-balanced Tone Reproduction Curves to determine K colorant value.

Yamamoto discloses building gray-balanced Tone Reproduction Curves (i.e. gray-reproduction characteristics) based on said measured color values (see abstract and paragraph 66); d) inputting a value n into said gray-balanced Tone Reproduction Curves to determine CMY colorant values and e) inputting said value n into said gray-balanced Tone Reproduction Curves to determine K colorant value (see paragraphs 60-81).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Pawandeep S Dhingra/

Examiner, Art Unit 2625

/David K Moore/

Supervisory Patent Examiner, Art Unit 2625

Conferee

/M. K. Z./

Supervisory Patent Examiner, Art Unit 2625